

PORCELLANID CRABS FROM THE CORAL SEA*

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ABSTRACT

Nine species of Porcellanidae (Crustacea: Decapoda: Anomura) are reported from the Coral Sea east of Australia. The family was previously unknown in this area. Most of the species treated have broad geographic ranges, but only one has been recorded from the east Australian coast.

KEYWORDS: Porcellanidae, Coral Sea, Marion Reef, Chesterfield Islands.

INTRODUCTION

During a 1979 cruise of R.V. "Lady Basten" in the Coral Sea, N.L. Bruce collected nine species of the family Porcellanidae from six stations at Marion Reef and at Long Island, Chesterfield Islands. These are the first records to be published of porcellanids from the Coral Sea area.

Measurements in the text refer to carapace length. The material is deposited in the Northern Territory Museum of Arts and Sciences (NTM), Darwin, Australia.

ACCOUNT OF SPECIES

Pachycheles johnsoni Haig

Pachycheles johnsoni Haig, 1965: 102, Fig. 1; Nakasone and Miyake 1968: 70, Fig. 5, Pl. 5 Fig. 4, Pl. 6 Fig. 1.

Material examined. Stn. LB/10, Marion Reef, south cay, 19°17'S, 152°13'E, 12 May 1979, reef flat at low water, coll. N.L. Bruce, 1 ♂, 1 ♀, NTM Cr. 004435.

Measurements. Male 3.2 mm, ovigerous female 2.9 mm.

Remarks. In the ornamentation of the chelipeds, these specimens are typical of the Oceanic, rather than the Australian, population of *P. johnsoni* (see Haig 1965: 104).

Distribution. Australia: Western Australia and Northern Territory. Pacific Ocean: Xisha (off Chinese mainland), Palau, Caroline, and Marshall Islands.

Pachycheles pisoides (Heller)

Porcellana pisoides Heller, 1865: 73, Pl. 6 Fig. 3.
Pachycheles lifuensis Borradaile, 1900: 397, 424; Grant and McCulloch 1907: 155, Pl. 1 Figs 2, 2a.

Pachycheles fronto Melin, 1939: 114, Figs 69-71.
Pisosoma fronto - Miyake 1943: 113, Figs 40, 41.
Pachycheles pisoides - Nakasone and Miyake 1968: 72, Fig. 6, Pl. 6 Fig. 2.

Material examined. Stn. LB/10, Marion Reef, south cay, 19°17'S, 152°13'E, 12 May 1979, reef flat at low water, coll. N.L. Bruce, 3 ♀ and 1 detached cheliped, NTM Cr. 004436.

Measurements. Non-ovigerous female 2.3 mm, ovigerous females 2.9 and 3.7 mm. The detached cheliped was from a still larger specimen.

Distribution. Indian Ocean: Madagascar, Seychelles, Nicobar Islands, and Western Australia. Pacific Ocean: several island groups, Ryukyu Islands E. to Hawaiian and Society Islands.

Pachycheles sculptus (H. Milne-Edwards)

Porcellana sculpta H. Milne-Edwards, 1837: 253.
Porcellana pisum H. Milne-Edwards, 1837: 254.
Porcellana pulchella Haswell, 1882: 758.
Pachycheles pulchellus - Miers 1884: 273, Pl. 30 Fig. A.

Pachycheles sculptus - Nakasone and Miyake 1968: 61, Fig. 1, Pl. 5 Figs 1-3.

Material examined. Stn. LB/17, Marion Reef, 19°14.1'S, 152°15.7'E, 13 May 1979, 2 m, lagoon pinnacle, coll. N.L. Bruce, 1 ♂, NTM Cr. 004437.

Measurements. Male 2.6 mm.

Remarks. Each longitudinal ridge of the chelae is obliquely grooved to form a row of closely set tubercles, as in the specimen depicted by Nakasone and Miyake (1968: Pl. 5 Fig. 3).

Distribution. Indian Ocean: Seychelles and Mergui Archipelago. Western Australia, Northern Territory, and Queensland.

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Indonesia, Philippines, and Asian mainland from Singapore N. to Hong Kong. Pacific Ocean: several island groups, Palau Islands E. to Tuamotu Archipelago.

***Petrolisthes carinipes* (Heller)**

Porcellana carinipes Heller, 1861: 24.

Petrolisthes carinipes - De Man 1893: 299, Pl. 7 Figs 5, 5a; Miyake and Nakasone 1966: 177, Figs 4, 5; Lewinsohn 1974: 249 *et seq.*, Figs 1-19.

Petrolisthes melini Miyake and Nakasone, 1966: 181.

Material examined. Stn. LB/10, Marion Reef, south cay, 19°17'S, 152°13'E, 12 May 1979, reef flat at low water, coll. N.L. Bruce, 1 ♀, 3 juv., NTM Cr. 004438; Stn. LB/12, unnamed cay N. of Long Island, Chesterfield Islands, 9 May 1979, 0.5 m, bommie on top of back reef, coll. N.L. Bruce, 1 ♂, 3 ♀, NTM Cr. 004439.

Measurements. Male 2.6 mm, non-ovigerous females 3.1 to 4.0 mm, ovigerous female 4.8 mm, juveniles 1.9 to 2.5 mm.

Distribution. Indian Ocean: Red Sea, Gulf of Aden, Seychelles, and Mauritius. Pacific Ocean: Bonin, Ryukyu, and Mariana Islands.

***Petrolisthes decacanthus* Ortmann**

Petrolisthes decacanthus Ortmann, 1897: 285, Pl. 17 Fig. 2.

Material examined. Stn. LB/10, Marion Reef, south cay, 19°17'S, 152°13'E, 12 May 1979, reef flat at low water, coll. N.L. Bruce, 1 ♀, NTM Cr. 004440.

Measurements. Ovigerous female 4.4 mm.

Distribution. Indian Ocean: Glorioso, Seychelle, and Maldivé Islands. Pacific Ocean: several island groups, Palau Islands eastward to Society Islands (Haig and Kropp, in press).

***Petrolisthes elegans* Haig**

Petrolisthes elegans Haig, 1981: 266, Fig. 2.

Material examined. Stn. LB/12, unnamed cay N. of Long Island, Chesterfield Islands, 9 May 1979, 0.5 m, bommie on top of back reef, coll. N.L. Bruce, 1 ♂, 1 ♀, NTM Cr. 004441.

Measurements. Male 3.3 mm, ovigerous female 4.4 mm.

Distribution. Pacific Ocean: Mariana, Caroline, Marshall, Samoa, Society, and Gambier Islands.

***Petrolisthes heterochrous* Kropp**

Petrolisthes heterochrous Kropp, 1986: 458, Fig. 3.

Material examined. Stn. LB/8, Long Island Chesterfield Islands, 19°52.2'S, 158°19.8'E, 5 May 1979, coral rock, 12 m, from seaward reef face, coll. N.L. Bruce, 1 ♂, 1 ♀, NTM Cr. 004442.

Measurements. Male 3.7 mm, juvenile female 2.3 mm.

Distribution. Reported only from the Mariana Islands. The specimens from the Coral Sea represent a considerable range extension southward.

***Petrolisthes moluccensis* (De Man)**

Porcellana (*Petrolisthes*) *moluccensis* De Man, 1888: 411, Pl. 18 Fig. 5.

Petrolisthes moluccensis - Miyake 1942: 337, Figs 3, 4; 1943: 97, Fig. 28; Lewinsohn 1969: 136, Fig. 28.

Material examined. Stn. LB/12, unnamed cay N. of Long Island, Chesterfield Islands, 9 May 1979, 0.5 m, bommie on top of back reef, coll. N.L. Bruce, 2 ♂, 1 ♀, NTM Cr. 004443; Stn. LB/13, data same as Stn. LB/12, 7 ♂, 4 ♀, 2 juv., NTM Cr. 004444.

Measurements. Males 2.2 to 4.6 mm, non-ovigerous females 2.5 to 4.1 mm, ovigerous female 3.5 mm, juveniles 1.9 mm.

Distribution. Indian Ocean: Persian Gulf and Red Sea to Abrolhos Islands, Western Australia. Eastern Indonesia. Pacific Ocean: Palau and Ryukyu Islands.

***Petrolisthes tomentosus* (Dana)**

Porcellana tomentosa Dana, 1852: 420; 1855: Pl. 26 Fig. 10.

Porcellana penicillata Heller, 1862: 523.

Porcellana villosa Richters, 1880: 160, Pl. 17 Figs 11, 12.

Petrolisthes penicillatus - Miyake 1942: 347, Figs 11, 12; 1943: 83, Fig. 18; Lewinsohn 1979: 45, Fig. 1.

Petrolisthes tomentosus - Kropp 1986: 453, Fig. 1.

Material examined. Stn. LB/10, Marion Reef, south cay, 19°17'S, 152°13'E, 12 May 1979, reef flat at low water, coll. N.L. Bruce, 1 ♂ with bopyrid, NTM Cr. 004445; Stn. LB/19, Long Island, Chesterfield Islands,

19°52.2'S, 158°19.8'E, 4 May 1979, reef platform at low water, coral rubble, coll. N.L. Bruce, 1 ♂, NTM Cr. 004446.

Measurements. Males 3.0 and 3.8 mm.

Remarks. There has been considerable confusion concerning the nomenclature of this species and its close relative, *P. pubescens* Stimpson. Because of uncertainty about the status of *Porcellana tomentosa*, Dana's name has been applied to both taxa. Kropp (1986) recently reviewed the history of this problem. He stabilized the nomenclature by designating a neotype of Dana's species, selected from the taxon that has most frequently appeared in the literature as *Petrolisthes penicillatus* (Heller).

Distribution. Indian Ocean: east coast of Africa to Abrolhos Islands, Western Australia. Pacific Ocean: Xisha, Ryukyu, Palau, Mariana, Fiji, Society, and Tuamotu Islands.

DISCUSSION

Most of the species collected during the "Lady Basten" cruise have broad geographic distributions. *Pachycheles pisoides*, *P. sculptus*, *Petrolisthes decacanthus* and *P. tomentosus* occur from the western Indian Ocean to the eastern part of the Indo-west Pacific region. *Petrolisthes carinipes* and *P. moluccensis* are found in the western Indian Ocean and eastward to islands of the western Pacific Ocean. *Pachycheles johnsoni* is known from western and northern Australia and western Pacific islands. *Petrolisthes elegans* and *P. heterochrous* occur only in the Pacific Ocean: the former extending across the Pacific, the latter confined to its western part.

Although the areas (particularly Marion Island) where the "Lady Basten" porcellanids were collected are relatively close to the Great Barrier Reef, it is interesting to note that only one of the species, *Pachycheles sculptus*, is known to occur in eastern Australia. None of the other eight species has been recorded from either the mainland of Queensland or from the Barrier Reef.

Key to Porcellanidae Known to Occur in the Coral Sea

1. Chelipeds robust, usually one distinctly larger than the other; telson five-plated. 2

- Chelipeds flattened, subequal; telson seven-plated 4
- 2. Carapace and chelipeds covered with long and short bristles; males with a pair of pleopods..... *Pachycheles pisoides* (Heller)
- Carapace and chelipeds devoid of setae; no pleopods in males 3
- 3. Anterior regions of carapace smooth; chelac smooth, tuberculate, or with four longitudinal ridges *Pachycheles sculptus* (H. Milne-Edwards)
- Anterior regions of carapace roughened by grooves; chelac with closely set tubercles, latter flat or convex and with scalloped edges...*Pachycheles johnsoni* Haig
- 4. Dorsal surface of carapace with five rounded elevations and with short setae.. *Petrolisthes tomentosus* (Dana)
- Dorsal surface of carapace with transverse striations 5
- 5. Carapace with two epibranchial spines and a supraocular spine on either side . 6
- Carapace with a single epibranchial spine on either side 7
- 6. Carapace armed laterally with mesobranchial spines *Petrolisthes heterochrous* Kropp
- No mesobranchial spines on lateral carapace margins *Petrolisthes decacanthus* Ortmann
- 7. Carapace with supraocular spine on either side *Petrolisthes carinipes* (Heller)
- No supraocular spine 8
- 8. Frontal area of carapace distinctly trilobate, lobes separated by deep U-shaped notches *Petrolisthes elegans* Haig
- Front sinuously triangular *Petrolisthes moluccensis* (De Man)

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